IN THE CLAIMS

1. A multicarrier signal receiver for receiving a serial signal sequence of modulated subcarriers carrying information for input pilot and data symbols, comprising:

a subcarrier-to-symbol converter for converting said serial signal sequence into received pilot and data symbols representative of said input pilot and data symbols; and

an inverse Fourier transformer for selecting said received pilot symbols from said received pilot and data symbols and then inverse Fourier transforming said received pilot symbols into received pilot multicarrier blocks.

2. The receiver of claim 1, wherein:

said modulated subcarriers are an orthogonal frequency division multiplex (OFDM) signal formed by inverse Fourier transforming said input pilot and data symbols.

3. The receiver of claim 1, wherein:

the subcarrier-to-symbol converter includes a Fourier transformer for Fourier transforming a representation of said serial signal sequence to said received pilot and data symbols.

4. The receiver of claim 1, further comprising:

a pilot multicarrier generator for generating a computed pilot multicarrier block having complex conjugates of system pilot symbols corresponding to said input pilot symbols; and

a correlator for correlating said received pilot multicarrier blocks with said computed pilot multicarrier block for providing a correlation function.

5. The receiver of claim 4, further comprising:

a frequency offset estimator using said correlation function for providing a frequency synchronization adjustment; and

a signal source for providing a reference signal having a frequency responsive to said frequency synchronization adjustment; wherein:

the subcarrier-to-symbol converter uses said reference signal for frequency synchronizing to said serial signal sequence and providing a frequency synchronized serial signal sequence, said received pilot and data symbols derived from said frequency synchronized serial signal sequence.

6. The receiver of claim 5, wherein:

the frequency offset estimator includes a peak phase detector for determining phases of peaks, respectively, of said correlation function; a block differencer for determining a phase difference between two said phases; and a discriminator for providing said frequency synchronization adjustment based upon said phase difference.

7. The receiver of claim 5, wherein:

the frequency offset estimator includes a frequency adjustment sweeper for varying said frequency synchronization adjustment; and a synch peak detector for monitoring said correlation function and fixing said

frequency synchronization adjustment when a peak of said correlation function exceeds a threshold.

8. The receiver of claim 4, wherein:

the subcarrier-to-symbol converter includes a time synchronization serial-to-parallel converter for time synchronizing said serial signal sequence into received multicarrier blocks according to times of peaks of said correlation function; and a Fourier transformer for Fourier transforming said received multicarrier blocks into said received pilot and data symbols.

9. The receiver of claim 4, further comprising:

a discrete noise reduction filter for receiving a raw said correlation function at discrete sample indexes and issuing a filtered said correlation function having filtered peaks at said discrete sample indexes for raw peaks of said raw correlation function greater than a threshold and having a zero level at said discrete sample indexes for said raw peaks of said raw correlation function less than a threshold.

10. The receiver of claim 9, further comprising:

an interpolator for interpolating said filtered correlation function for providing a channel impulse response;

a Fourier transformer for transforming said channel impulse response for forming channel estimates; and

an equalizer for using said channel estimates for equalizing said received pilot and data symbols.

11. A method for receiving a serial signal sequence of modulated subcarriers carrying information for input pilot and data symbols, comprising:

converting said serial signal sequence into received pilot and data symbols representative of said input pilot and data symbols;

selecting said received pilot symbols from said received pilot and data symbols;

inverse Fourier transforming said received pilot symbols into received pilot multicarrier blocks.

12. The method of claim 11, further comprising:

inverse Fourier transforming said input pilot and data symbols for forming said modulated subcarriers as an orthogonal frequency division multiplex (OFDM) signal.

13. The method of claim 11, wherein:

converting said serial signal sequence into received pilot and data symbols includes Fourier transforming a representation of said serial signal sequence to said received pilot and data symbols.

14. The method of claim 11, further comprising:

generating a computed pilot multicarrier block having complex conjugates of system pilot symbols corresponding to said input pilot symbols; and

correlating said received pilot multicarrier blocks with said computed pilot multicarrier block for providing a correlation function.

15. The method of claim 14, further comprising:

converting said correlation function to a frequency synchronization adjustment;

providing a reference signal having a frequency responsive to said frequency synchronization adjustment;

using said reference signal for frequency synchronizing to said serial signal sequence and providing a frequency synchronized serial signal sequence; and

using said frequency synchronized serial signal sequence for providing said received pilot and data symbols.

16. The method of claim 15, wherein:

converting said correlation function to said frequency synchronization adjustment comprises:

detecting phases of peaks, respectively, of said correlation function;

determining a phase difference between two said phases; and

providing said frequency synchronization adjustment based upon said phase difference.

17. The method of claim 15, wherein:

converting said correlation function to said frequency synchronization adjustment comprises:

varying said frequency synchronization adjustment;

monitoring said correlation function; and

fixing said frequency synchronization adjustment when a peak of said correlation function exceeds a threshold.

18. The method of claim 14, further comprising:

time synchronizing said serial signal sequence into received multicarrier blocks according to times of peaks of said correlation function; and

Fourier transforming said received multicarrier blocks into said received pilot and data symbols.

19. The method of claim 14, further comprising:

receiving a raw said correlation function at discrete sample indexes; and

issuing a filtered said correlation function having filtered peaks at said discrete sample indexes for raw peaks of said raw correlation function greater than a threshold and having a zero level at said discrete sample indexes for said raw peaks of said raw correlation function less than a threshold.

20. The method of claim 19, further comprising:

interpolating said filtered correlation function for providing a channel impulse response;

Fourier transforming said channel impulse response for forming channel estimates; and

equalizing said received pilot and data symbols based upon said channel estimates.

21. A multicarrier signal receiver for receiving a serial signal sequence of modulated subcarriers carrying information for input pilot and data symbols, comprising:

a subcarrier-to-symbol converter for converting said serial signal sequence into received pilot and data symbols representative of said input pilot and data symbols;

a guard pilot calculator for determining one or more inferred guard band symbols based upon at least one of said received pilot symbols; and

a pilot symbol processor for converting said received pilot symbols and said inferred guard band symbols into a channel impulse response.

22. The receiver of claim 21, wherein:

said modulated subcarriers are an orthogonal frequency division multiplex (OFDM) signal formed by inverse Fourier transforming said input pilot and data symbols.

23. The receiver of claim 21, wherein:

the subcarrier-to-symbol converter includes a Fourier transformer for Fourier transforming a representation of said serial signal sequence to said received pilot and data symbols.

24. The receiver of claim 21, wherein:

the pilot symbol processor includes a pilot symbol generator for generating scaled complex conjugates of system pilot symbols corresponding to said input pilot symbols;

a multiplier for multiplying said received pilot symbols and said inferred guard band symbols by corresponding ones of said scaled complex conjugates of system pilot symbols for providing pilot response products; and

an inverse Fourier transformer for inverse Fourier transforming said pilot response products into a channel impulse response.

25. The receiver of claim 24, wherein:

the guard pilot calculator uses at least one outer one of said received pilot symbols for determining at least one of said inferred guard band symbols.

26. The receiver of claim 25, wherein:

the inverse Fourier transformer inverse Fourier transforms said pilot response products, zero values for user data QAM symbols, and guard band zero values into said channel impulse response and copies of said channel impulse response.

27. The receiver of claim 24, further comprising:

a frequency offset estimator using said channel impulse response for providing a frequency synchronization adjustment; and

a signal source for providing a reference signal having a frequency responsive to said frequency synchronization adjustment; wherein:

the subcarrier-to-symbol converter uses said reference signal for frequency synchronizing to said serial signal sequence and providing a frequency synchronized serial signal sequence, said received pilot and data symbols derived from said frequency synchronized serial signal sequence.

28. The receiver of claim 27, wherein:

the frequency offset estimator includes a peak phase detector for detecting phases at amplitude peaks, respectively, of said channel impulse response; a block differencer for determining a phase difference between two said phases; and a discriminator for providing said

frequency synchronization adjustment based upon said phase difference.

29. The receiver of claim 27, wherein:

the frequency offset estimator includes a frequency adjustment sweeper for varying said frequency synchronization adjustment; and a synch peak detector for monitoring said channel impulse response and fixing said frequency synchronization adjustment when a peak of said channel impulse response exceeds a threshold.

30. The receiver of claim 24, wherein:

the subcarrier-to-symbol converter includes a time synchronization serial-to-parallel converter for time synchronizing said serial signal sequence into received multicarrier blocks according to times of peaks of said channel impulse response; and a Fourier transformer for Fourier transforming said received multicarrier blocks into said received pilot and data symbols.

31. The receiver of claim 24, further comprising:

a discrete noise reduction filter for receiving a raw said channel impulse response at discrete sample indexes and issuing a filtered said channel impulse response having filtered peaks at said discrete sample indexes for raw peaks of said raw channel impulse response greater than a threshold and having a zero level at said discrete sample indexes for said raw peaks of said raw channel impulse response less than a threshold.

32. The receiver of claim 31, further comprising:

an interpolator for receiving said filtered channel impulse response and issuing an interpolated channel impulse response;

a Fourier transformer for transforming said interpolated channel impulse response for forming channel estimates; and

an equalizer for using said channel estimates for equalizing said received pilot and data symbols.

33. A method for receiving a serial signal sequence of modulated subcarriers carrying information for input pilot and data symbols, comprising:

converting said serial signal sequence into received pilot and data symbols representative of said input pilot and data symbols;

determining one or more inferred guard band symbols based upon at least one of said received pilot symbols; and

converting said received pilot symbols and said inferred guard band symbols into a channel impulse response.

34. The method of claim 33, further comprising:

inverse Fourier transforming said input pilot and data symbols for forming said modulated subcarriers as an orthogonal frequency division multiplex (OFDM) signal.

35. The method of claim 33, wherein:

converting said serial signal sequence into received pilot and data symbols includes Fourier transforming a representation of said serial signal sequence to said received pilot and data symbols.

36. The method of claim 33, wherein:

converting said received pilot symbols and said inferred guard band symbols into a channel impulse response includes:

generating scaled complex conjugates of system pilot symbols corresponding to said input pilot symbols;

multiplying said received pilot symbols and said inferred guard band symbols by corresponding ones of said scaled complex conjugates of system pilot symbols for providing pilot response products; and

inverse Fourier transforming said pilot response products into a channel impulse response.

37. The method of claim 36, wherein:

calculating said one or more inferred guard band symbols includes determining at least one of said inferred guard band symbols from at least one outside one of said received pilot symbols.

38. The method of claim 37, wherein:

inverse Fourier transforming said received pilot response products, zero values for user data QAM symbols, and guard band zero values into said channel impulse response and copies of said channel impulse response.

39. The method of claim 38, further comprising:

converting said channel impulse response to a frequency synchronization adjustment;

providing a reference signal having a frequency responsive to said frequency synchronization adjustment;

using said reference signal for frequency synchronizing to said serial signal sequence and providing a frequency synchronized serial signal sequence; and

using said frequency synchronized serial signal sequence for providing said received pilot and data symbols.

40. The method of claim 39, wherein:

converting said channel impulse response to said frequency synchronization adjustment comprises:

detecting phases at amplitude peaks, respectively, of said channel impulse response;

determining a phase difference between two said phases; and

providing said frequency synchronization adjustment based upon said phase difference.

41. The method of claim 39, wherein:

converting said channel impulse response to said frequency synchronization adjustment comprises:

varying said frequency synchronization adjustment;

monitoring said channel impulse response; and

fixing said frequency synchronization adjustment when a peak of said channel impulse response exceeds a threshold.

42. The method of claim 36, further comprising:

time synchronizing said serial signal sequence into received multicarrier blocks according to times of peaks of said channel impulse response; and

Fourier transforming said received multicarrier blocks into said received pilot and data symbols.

43. The method of claim 36, further comprising:

receiving a raw said channel impulse response at discrete sample indexes; and

issuing a filtered said channel impulse response having filtered peaks at said discrete sample indexes for raw peaks of said raw channel impulse response greater than a threshold and having a zero level at said discrete sample indexes for said raw peaks of said raw channel impulse response less than a threshold.

44. The method of claim 43, further comprising:

interpolating said filtered channel impulse response for providing an interpolated channel impulse response;

Fourier transforming said interpolated channel impulse response into channel estimates; and

equalizing said received pilot and data symbols with said channel estimates.